

Patent Claims

1. Light-guide body which has at least one light-entry surface and at least one light-exit surface, the ratio of the light-exit surface area to the light-entry surface area being at least 4, comprising at least one light-guiding layer, characterized in that the light-guiding layer comprises at least 60% by weight, expressed in terms of the weight of the light-guiding layer, of polymethyl methacrylate and from 0.0001 to 0.2% by weight, expressed in terms of the weight of the light-guiding layer, of spherical particles with an average diameter in the range of from 0.3 to 40  $\mu\text{m}$ , and the light-exit surface of the light-guiding layer is provided with structurings.
2. Light-guide body according to Claim 1, characterized in that the ratio of the light-exit surface area to the light-entry surface area is at least 20.
3. Light-guide body according to Claim 1 or 2, characterized in that the thickness of the light-guiding layer is in the range of from 2 to 100 mm.
4. Light-guide body according to one or more of the preceding claims, characterized in that the particles are made of barium sulfate and/or plastic.
5. Light-guide body according to Claim 4, characterized in that the plastic particles comprise crosslinked polystyrene.
6. Light-guide body according to one or more of the preceding claims, characterized in that the light-exit surface has uniform structurings.
7. Light-guide body according to one or more of the preceding Claims 1 to 5, characterized in that the light-exit surface has nonuniform structurings.
8. Light-guide body according to one or more of the preceding claims, characterized in that the structurings of the light-exit surface are in point form and/or in line form.

9. Light-guide body according to one or more of the preceding claims, characterized in that the light-guide body comprises at least 90% by weight, expressed in terms of the weight of the light-guide body, of polymethyl methacrylate.

10. Light-guide body according to one or more of the preceding claims, characterized in that the particles have an average diameter in the range of from 1.4 to 10  $\mu\text{m}$ .

11. Light-guide body according to one or more of the preceding claims, characterized in that the light-guiding layer has from 0.0005 to 0.08% by weight, expressed in terms of the weight of the light-guiding layer, of spherical particles.

12. Light-guide body according to one or more of the preceding claims, characterized in that the polymethyl methacrylate of the light-guiding layer has a refractive index at the Na-D line (589 nm) and at 20°C in the range of from 1.48 to 1.54.

13. Light-guide body according to one or more of the preceding claims, characterized in that the light-guiding layer has a transmission according to DIN 5036 in the range of from 75 to 92%.

14. Light-guide body according to one or more of the preceding claims, characterized in that the light-exit surface is perpendicular to the light-entry surface.

15. Light-guide body according to one or more of the preceding claims, characterized in that at least one surface, which is parallel to the light-entry surface, is configured with a reflective layer.

16. Process for producing a light-guide body according to Claims 1 to 15, characterized in that a molding composition having at least 60% by weight, expressed in terms of the weight of the molding composition, of polymethyl methacrylate and from 0.0001 to 0.2% by weight, expressed in terms of the weight of the molding composition, of spherical particles with an

average diameter in the range of from 0.7 to 40  $\mu\text{m}$ , is thermoplastically molded.

17. Process for producing a light-guide body according to Claims 1 to 15, characterized in that an  
5 acrylic resin having

A) 0.0001 - 0.2% by weight of spherical particles with an average diameter in the range of from 0.7 to 40  $\mu\text{m}$ ,

B) 40 - 99.9999% by weight of methyl methacrylate,

C) 0 - 59.9999% by weight of comonomers,

10 D) 0 - 59.9999% by weight of polymers soluble in (B) or (C),

the components A) to D) adding up to 100%, is radical-polymerized.

18. Device for indirect lighting having at least  
15 one light-guide body according to Claims 1 to 15, and a light source, which can illuminate the light-entry surface of the light-guide body.